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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/072,979

02/12/2002

Do-Wan Kim

P56602

3530

7590

05/20/2004

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EXAMINER

WONG, KIN C

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,979

Applicant(s)

KIM, DO-WAN

Examiner

K. Wong

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3&4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 2/12/02 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

A copy of 20-0172486 is missing from the IDS package (2/12/02).

Claim Objections

Claims (5, 6, 11 and 12) are objected to because of the following informalities: these claims recite the phrase "step" which have a special patent phraseology meanings. Examiner suggests "stepwise" for the replacement of the phrase "step." Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims (3, 4, 9 and 10) recite the limitation "said hooking portions of ... stopping guard" in the noted claims. There is insufficient antecedent basis for this limitation in the noted claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims (1-2, 7-8, 13-16, 18-21) are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al (5671104 –applicant submitted prior art – in page 5 of the instant specification).

Regarding claim 1: Takahashi et al discloses an actuator latch device (as depicted in figure 2 of Takahashi et al) of a hard disk drive for locking an actuator to prevent movement of the actuator, when a magnetic head installed on the actuator is parked in a parking area of a hard disk (see col. 3, line 59 to col. 4, line 4 of Takahashi et al), the actuator latch device including:

a locking protrusion (element 11 in figure 1) provided on an end portion of the actuator opposite an end on which the magnetic head is installed (as depicted in figure 1 and see associated descriptions for details);

a stopping guard (or crash stop) for restricting a pivot range of the actuator (see col. 5, lines 1-3 of Takahashi et al);

a latch lever (element 25 in figure 2 and col. 4, lines 16-46 of Takahashi et al) allowed to pivot around an axis; and

a latch lever driving means (element 28 in figure 2) for driving the latch lever, the latch lever being driven by the latch lever driving means to a locking position to prevent the actuator from rotating when the magnetic head is parked in the parking area by moving one end of the latch lever to a position for interfering with the horizontal movement of the locking protrusion (in col. 4, lines 16-46 where Takahashi et al

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describes the interfering with the horizontal movement of the arm when its in the locked position).

Regarding claim 2: Takahashi et al depicts the elements 25-28 in figures 3-5 that wherein the latch lever driving means is provided with a coil wound around a second end of the latch lever (see associated descriptions for details).

Regarding claim 7: Takahashi et al teaches that wherein the actuator latch device further including: an upper yoke and a corresponding first magnet positioned above a bobbin of the actuator; a lower yoke and a corresponding second magnet positioned below the bobbin, wherein the lower yoke includes a first coupling portion for magnetically attracting the second end of the latch lever when the magnetic head is to be parked in the parking area and the upper yoke includes a second coupling portion for magnetically attracting the second end of the latch lever when the magnetic head is to be positioned over a recording/reproducing area of the hard disk (in col. 5, lines 60 to col. 6, line 7 where Takahashi et al describes the magnet field of the VCM supplies the magnet attraction for the latching/locking during the parking of the head with the above noted functions).

Regarding claim 8: Takahashi et al teaches that wherein the latch lever driving means provides a first current to the coil when the latch lever is to be pivoted to the locking position for preventing the rotation of the actuator, and provides a second current, opposite to the first current, to the coil when the latch lever is to be pivoted to an unlocking position for enabling the actuator to be rotated (in col. 4, line 56 to col. 5, line 17 of Takahashi et al).

Regarding claim 13: Takahashi et al discloses an actuator latch device (as depicted in figure 2) of a hard disk drive for locking an actuator to prevent movement of the actuator, when a magnetic head installed on the actuator is parked in a parking area of a hard disk (see col. 3, line 59 to col. 4, line 4), the actuator latch device including:

a locking protrusion (element 11 in figure 1) extending from a bobbin of the actuator (as depicted in figure 1 and see associated descriptions for details);

a first stop for limiting pivotal movement of the actuator in a first direction, the first stop coming into contact with the locking protrusion when the magnetic head is moved to the parking position (in col. 5, lines 1-3 where Takahashi et al describes the stopper (or crash stop) during head parking);

an upper yoke and a corresponding first magnet positioned above the bobbin (in col. 5, lines 60-65 where Takahashi et al describes the upper yoke and the corresponding magnet);

a lower yoke and a corresponding second magnet positioned below the bobbin (elements 22 and 24 in figure 2), wherein the upper yoke includes a first extended coupling portion and the lower yoke includes a second extended coupling portion (as depicted in figure 2);

a latch lever (element 25 in figure 2) pivotally installed adjacent to the upper and lower yokes;

an interference part attached to a first end of the latch lever (as element 24^{wrong} depicted in figure 2);

element 24 is not
define as "the interference
part" !!

a coil wound around a second end of the latch lever (as element 28 depicted in figure 2); and

a power supply (The power supply is an inherent element for electrical apparatus.) for driving the latch lever (in col. 2, lines 23-37 where Takahashi et al describes the electrical power to operate the electric-mechanical latch), wherein the second end of the latch lever is magnetically attracted to the second extended coupling portion of the lower yoke when the power supply provides a first current to the coil, and the second end of the latch lever is magnetically attracted to the first extended coupling portion of the upper yoke when the power supply provides a second current, opposite to the first current, to the coil (see col. 2, lines 23-37 and col. 4, line 15 to col. 5, line 17 of Takahashi et al).

Regarding claim 14: Takahashi et al depicts in element 25 of figure 3 that wherein the interference part includes a step (stepwise) part having an inclined surface over which the locking protrusion slides when the magnetic head is to be parked in the parking area.

Regarding claim 15: Takahashi et al depicts in element 25 of figure 3 that wherein the stepwise (step) part traps the locking protrusion (element 11) against the first stop when the magnetic head is parked in the parking area and releases the locking protrusion when the actuator is enabled to position the magnetic head over a recording/reproducing area of the hard disk (see col. 4, line 4 to col. 5, line 8 of Takahashi et al).

Regarding claim 16: the limitations of a second stop for limiting the pivotal movement of the actuator in a second direction, by limiting the movement of the locking protrusion as the actuator rotates in the second direction are considered inherent because the second stopping position is an inherent function of the stopper or the crash stop (i.e., the inner stop and the outer stop respectively in either directions).

Regarding claim 18: Takahashi et al an apparatus for locking an actuator arm (as depicted in figure 2) of a hard disk drive having a release force acting on the actuator arm to move the actuator arm from a parking position to a data position (see col. 4, lines 56-65), the actuator arm (element 8 in figure 1) including a magnetic head (element 5) attached thereto, the apparatus including:

an extruding member (element 11) disposed on one end of the actuator arm opposite to the magnetic head (see col. 3, lines 40-44 of Takahashi et al), the extruding member moving in a first direction when the actuator arm moves from the parking position to the data position, and the extruding member moving in a second direction when the actuator arm moves from the data position to the parking position (see col. 3, line 59 to col. 4, line 4 and col. 4, line 56 to col. 5, line 8 of Takahashi et al); and

a latch means (elements 25-28 in figure 2) configured to engage the extruding member, the latch means having a hold position in which a movement of the extruding member is restricted in both the first and second directions and a release position in which the movement of the extruding member is not restricted; wherein the latch means moves from the hold position to the release position independent of the release force (as illustrated in figures 2-5 and see associated descriptions for details).

Regarding claim 19: Takahashi et al depicts in figures 2-5 that wherein latch means engages said extruding member non-magnetically (see associated descriptions for details).

Regarding claim 20: Takahashi et al discloses an apparatus for locking an actuator arm (see col. 4, lines 15-46 of Takahashi et al) of a hard disk drive having a release force acting on the actuator arm to move the actuator arm from a parking position to a data position (see depictions of figures 2-5), the actuator arm including a magnetic head attached thereto (see col. 3, lines 31-44 of Takahashi et al), the apparatus including:

an extruding member disposed on one end of the actuator arm opposite the magnetic head (see col. 3, lines 40-44 of Takahashi et al); and

a latch means having a hold position in which the latch means engages the extruding member from at least two sides to restrict a movement of the extruding member and a release position in which the movement of the extruding member is not restricted (see col. 4, lines 15-65 of Takahashi et al);

wherein the latch means moves from the hold position to the release position independent of the release force (see col. 4, lines 56-65 of Takahashi et al).

regarding claim 21: Takahashi et al depicts in figures 2-5 that wherein latch means engages said extruding member non-magnetically (see associated descriptions for details).

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims (3-6, 9-12 and 17) are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (5671104) in view of Stone (5668683).

Regarding claims 3, 4, 9, 10 and 17: the reason for Takahashi et al is stated in above rejections. Takahashi et al is silent on a hooked stopping guard (or a stopper with hooks) in conjunction with the latching (or trap the tap (element 11 in figure 3 of Takahashi et al) that which is pivotal mounted. Stone is relied on for the teachings of the hooked stopper with a pivotal mounted (see element 50 in figure 3 and col. 4, lines 22-27 of Stone).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the stopper (or crash stop) of Takahashi et al with the hooked stopping guard or crash stop as taught by Stone. The rationale is as follows: one ordinary skill in the art would have been motivated to provide a counter balance latch assembly to prevent sudden shock or linear movement as suggested in col. 2, lines 38-49 of Stone.

Regarding claims 5, 6, 11 and 12: Takahashi et al depicts in element 25 of figure 3 that wherein the interference part includes a stepwise (step) part having an inclined surface over which the locking protrusion slides when the magnetic head is to be parked in the parking area.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Arin et al (5162959), Stefansky (5694271), Kim (2002/0176211) and Kin (JP2002030590) are cited for electromagnetic latching the actuator while in park position. Misso et al is cited for crash stopper.

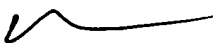
Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Wong whose telephone number is (703) 305-7772.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Hudspeth can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kw

15 May 04


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